

known to the Tunisian Arabs by the name of *Ghazel abied* or *Resél abied*, meaning the *White Gazelle*, its Algerian name *Reem* or *Rim* being apparently unknown in Tunis.

It seems to be a true desert species, never occurring out of the sand-dune country, where it replaces *G. dorcas*; and while the home of the latter species is the semi-desert country, with its vast stony plains, covered with scanty scrub vegetation, the habitat of *G. loderi* is undoubtedly the more arid region of sand wastes further south.

Herr Spatz, who has resided for several years in the south of Tunis, and is well acquainted with this Gazelle, informs me that it is common in the inland country of the extreme south of the Regency, being first met with at about 25 to 30 miles south of the Chott Djerid. In the districts where it occurs it is plentiful, and is generally to be found in small herds; but owing to its very pale colour, which harmonizes so well with that of the desert surroundings, it is not easily distinguished at a distance, and being, moreover, extremely shy and wary, a near approach is not often possible. The nomad Arabs, however, who are nearly all sportsmen, kill a good many, and every year some 500 to 600 pairs of horns of this species are brought by the caravans coming from the interior to Gabes, where they find a ready sale among the French soldiery.

Herr Spatz confirms what Sir Edmund Loder says of this species never drinking, and, as to its food, says it subsists on the leaves and berries of the few desert plants to be found in the sand wastes. The female of *G. loderi*, according to Spatz, often has two young ones at a birth, differing in this respect from *G. dorcas*, which seems to have but one.

So good a description of *G. loderi* has been given by Mr. Thomas (P. Z. S. 1894, p. 470), that I can add nothing thereto, except it be merely to say that the coat of this Gazelle is extremely fine and short-haired, and that in specimens which I have the knee-brushes are so slightly developed as to be scarcely noticeable or worthy of the name.

5. On two Collections of Lepidoptera made by Mr. R. Crawshay in Nyasa-land. By ARTHUR G. BUTLER, Ph.D., F.L.S., F.Z.S., &c., Senior Assistant-Keeper, Zoological Department, British Museum.

[Received August 18, 1896.]

(Plates XLI. & XLII.)

A few days before his return to England a small collection of Lepidoptera reached me from Mr. Crawshay, accompanied by a letter, in which he stated that it was from quite a new locality, "viz. from Senga, the Loangwa River valley—which, as you can see, drains into the Upper Zambesi River, and not into this lake.

“So far as I know, only two Europeans have ever visited Senga besides myself, one of whom was poor Mr. Glave, who died lately when crossing the continent from east to west. No one, I think, has ever done any natural history collecting there.

“In August and September last I had occasion to make a journey into Senga, for the purpose of investigating the slave-trade, and this afforded me an opportunity of shooting and natural history collecting.

“I got together a number of Antelopes' heads, some land-shells, and about sixty species of Butterflies—some of which I take to be new, for I have never before seen anything like them. Had the state of the country permitted it, I would have prolonged my journey and done more; but the Senga slave-traders proved hostile: twice we were fired on; and, having no fighting force at my disposal, I was obliged to retrace my steps.

“However, everything taken into consideration, I am well pleased with what little I got; the Butterflies certainly are very interesting, and will furnish, I should think, six or seven new species, if not more.

“Returning from Senga, then, I revisited Henga (3½ days S.W. from this), and there I spent about six weeks for the purpose of shooting. It was not a good time of year for insects, being just the end of the dry season: however, I took a few, one a large spotted ‘Blue’—the largest ‘Blue’ I think I ever saw, but not anything gorgeous, which may be something good. This and one or two other insects I will send you, all in the same box.”

We had commenced mounting the Butterflies in this very interesting consignment when Mr. Crawshaw reached England, bringing with him two other boxes of Lepidoptera collected by him in or near the Deep Bay district. I have therefore thought it best to combine the account of the two collections in one paper.

As, of late years, the minds of Lepidopterists have been greatly exercised respecting the seasonal forms of Butterflies, I asked Mr. Crawshaw whether he could give me information respecting the duration of the wet and dry seasons in British Central Africa. He now sends me the following particulars, which will doubtless prove of considerable value to the students of dimorphism:—

“No precise limit can be laid down to define the rainy and dry seasons throughout the whole of British Central Africa. The seasons vary in the various localities: in the first place, latitude has to be taken into consideration; then, again, the rains of the hills set in earlier than those of the plains.

“In the *Shiri highlands*, which on the mean are over 3000 feet alt., the first rains fall about the end of September or the beginning of October, according to the phase of the moon; these are the preliminary rains, and they last only two or three days, as a rule. Then succeeds a dry period of some three weeks or so. After this the heavy rains set in, and continue until the middle or end of April—some years a little earlier or later than this.

“This year I happened to be at Blantyre at the end of April

and the beginning of May: it rained then almost every day, up to the date of my departure on or about May 12th.

“On the *Lower Shiri plains* the wet season does not set in until later: no rain falls at Chiromo, I think, before the middle of November. The last day or two of October, 1894, when travelling by land from Chiromo to Blantyre, I came in for light rains on reaching the foot of the hills at the back of the Elephant marsh.

“Further north, on *Lake Nyasa*, the rains commence later by about a month or six weeks, on the mean: much, however, depends on locality—whether the country is plain or hilly, and, again, bare or forested.

“Take for instance *Deep Bay*, about $10^{\circ}30'$ S. lat., and roughly some ninety miles from the north end of the lake. Here there are low hills attaining a height of some 400 feet above the lake, and behind these again is low undulating country extending some twelve or fifteen miles inland, to the foot of the Nyika plateau, which attains on the mean a height of 7400 feet, the accepted altitude of *Lake Nyasa* being some 1600 odd feet.

“No rain falls at *Deep Bay* before the middle of November, sometimes not until later. In 1893 there was no rain before December, when there were two or three preliminary showers. The heavy rains did not set in until January 8, 1894. In 1895 there were some very heavy preliminary rains in November; the heavy rains set in, in good earnest, with the waning moon in December of that year.

“The rains continue until about the middle of May, sometimes a week or two later; the heavy rains slack off at the end of March. The heaviest rains of the year are between February and March; after that it rains fitfully, at intervals of every two or three days.

“In 1889 it rained all May, very heavily too during the first half of the month. In 1893 there were two very heavy downpours on the 17th and 18th July, fully five or six weeks after the dry season had set in.

“In *Nyika* the rains commence a good deal earlier and last longer. It is a very moist country indeed; the higher parts of it can hardly be said to have any dry season, as there are rainy mists all the year through. The first rains fall about the end of September or the beginning of October. The rainfall of these mountains rather resembles that of Northern Europe, Ireland especially: it rains thickly but lightly, and for days on end at times; there are not the heavy downpours which are experienced at lower altitudes.

“A hundred miles or so south of *Deep Bay*, at *Bandawe*, the rains set in earlier than at *Deep Bay*; this may be attributed to the fact that *Bandawe* is a hilly promontory, abutting from high mountainous country, some of the rainfall of which finds its way down to the lake along the neck of connecting highland. If I recollect rightly, I experienced a shower or two of rain when

camped at Bandawe about the last day of October, 1885. Bandawe, I might here mention, is a terrible spot for thunderstorms.

"In *Henga*, the valley of the Upper Lanyina River, 3300 feet alt., on the mean, some fifty miles S.W. of Deep Bay, the early rains fall about the beginning of November and the rainy season ends about the beginning of May, though there may be, and very often are, a good few showers after that.

"On the *Konde plains*, which commence about thirty miles north of Deep Bay and extend to the lofty Wakinga Mountains in German territory, the rains are a week or two later than at Deep Bay. At *Karonga*, the terminus of the so-called Nyasa-Tanganyika "road" (no road in reality exists—it is only a native track), the first rains do not fall before the beginning of December, as a rule. The dry season there commences at the beginning of May, or possibly a little earlier, according to the phase of the moon.

"The Nyasa-Tanganyika plateau:—rains commence in November, about the beginning of the month on the escarpments of the plateau, and about a fortnight later halfway across, and last until the end of April. The rainfall is very heavy, especially at the extremities of the plateau: nevertheless, towards the end of the dry season, much of it is a desert almost, for want of water.

"In the Loangwa River valley, Senga, some seven or eight days' journeying on foot S.W. of Karonga, the preliminary rains commence in September; and, I believe, the rainy season lasts till May, though I was not there to see this for myself. In August, 1895, I found the Loangwa valley completely burnt up; on September 10th we had rain, also on one or two days subsequently.

"In the Eastern watershed of the Congo, *i. e.* on Lake Mweru, and in Kabwiri and Itawa, the preliminary rains fall in September, and the rainy season lasts on into May. During my period of residence on Lake Mweru, I found the rainy season of 1891-1892 ended May 6th on the level of the Lake; a fortnight later on the plateau to the eastward: the preliminary rains of 1892-1893 again began on September 4th, some three weeks earlier than was the case in 1891."

All Mr. Crawshay's captures having been carefully dated, it will now be possible for any Lepidopterists, by going through my published papers, to discover whether a form was obtained in the dry or wet season; in any case it is certain that some of the supposed distinctly *seasonal* forms were all captured at the same spot on the same day, and (to judge by their excellent condition) must have emerged from the pupa about the same time; but I am told that this fact does not militate against the view that they are dry- and wet-season forms! Personally, I fail to understand how an insect which flies abundantly in the middle of the rainy season can be called a "dry-season form"; I can only suppose that the expression "dry season" is not to be understood literally, but merely as indicating a type of form and colouring prevalent during the dry season, though often occurring during the rains.

The following is a list of the species in the two series last collected by Mr. Crawshay, among which are twenty new to science, some being of considerable interest.

1. AMAURIS ANSORGEI.

Amauris ansorgei, E. M. Sharpe.

Kasungu Mountain, 7200 feet alt., Nyika, March 3rd, 1896.

2. AMAURIS CRAWSHAYI, sp. n. (Plate XLI. fig. 1.)

Intermediate between *A. albimaculata* and *A. whytei*: the primaries having the form and pattern of the former, but the ground-colour is much deeper, glossed with indigo; the pattern of the secondaries corresponds with that of *A. whytei*, excepting that the submarginal spots are better defined and pearl-white and the broad belt paler and more creamy. Expanse of wings 80 millim.

♂ ♂, Kapora, Songwe plain, 2nd March, 1895; Nkata Bay, W. coast of Lake Nyasa, 14th March, 1896.

3. LIMNAS CHRYSIPPUS.

Papilio chrysippus, Linnaeus, Mus. Lud. Ulr. p. 263 (1764).

♂, Kasungu Mountain, 7425 feet alt., Nyika, March 4th, 1896.

4. GNOPHODES DIVERSA.

Gnophodes diversa, Butler, Ann. & Mag. Nat. Hist. ser. 5, vol. v. p. 333 (1880).

♀, Mkamasi River, Nyasa to Tanganyika Road, August 22nd, 1895.

"White ova" (*R. C.*).

5. MELANITIS SOLANDRA.

Papilio solandra, Fabricius, Syst. Ent. p. 500 (1775).

♀, Leya, Deep Bay, W. coast of Lake Nyasa, June 4th, 1895

Var. *fulvescens*. Nkata Bay, March 14th, 1896.

"Emerald-green ova" (*R. C.*).

6. APHYSONEURIA PIGMENTARIA.

Aphysoneuria pigmentaria, Karsch, Ent. Nachr. xx. p. 191 (1894).

♀, Kasungu Mountain, 7425 feet alt., March 3rd, 1896.

"Pearly-white coloured ova" (*R. C.*).

7. PHYSCENURA PIONE.

♀. *Phycenura pione*, Godman, P. Z. S. 1880, p. 183, pl. xix. figs. 2, 3; ♂. Trimen, l. c. 1894, p. 20, pl. iv. fig. 1.

Fuleriva forest, Deep Bay, March 6th, 1896.

Seven examples were obtained; but, as we already possess a sufficient series of this pretty species, none were retained for the Museum collection.

8. SAMANTA SIMONSI.

Mycalesis simonsii, Butler, Ann. & Mag. Nat. Hist. ser. 4, vol. xix. p. 458 (1877).

♂♂, Karonga plain, 1670 feet alt., N.W. coast of Lake Nyasa, August 20th; ♀, Virauli Mountain, Nyasa to Tanganyika Road, August 22nd, 1895.

Said to be, without question, the dry-season form of *S. perspicua*: this is quite possible, inasmuch as all the specimens now sent were obtained at the height of the dry season. The difference between the two forms is one of colour rather than of pattern or outline; also, as might be expected, the ocelli are reduced in size. The chief objection is that the nearly related *S. eliasis* is a native of a humid country, and has no wet-season form corresponding with *S. perspicua*.

9. CHARAXES SATURNUS, var. LATICINCTUS.

Charaxes saturnus, var. *laticinctus*, Butler, P. Z. S. 1895, p. 252.

♂, Vuwa, W. coast of Lake Nyasa, August 16th, 1895.

10. CHARAXES DRUCEANUS.

Charaxes druceanus, Butler, Cist. Ent. i. p. 4 (1869); Lep. Exot. p. 26, pl. x. fig. 4.

♂, Lumpi River, Lower Nyika, Nov. 30th, 1895.

“Taken on a putrefying Eland’s head, while on a porter’s head” (*R. C.*).

11. CHARAXES ACHÆMENES.

Charaxes achæmenes, Felder, Reise der Nov., Lep. iii. p. 446, pl. lix. figs. 6, 7 (1867).

♂, Deep Bay, March 6th, 1896.

12. CHARAXES GUDERIANA.

♂. *Nymphalis guderiana*, Dewitz, Nova Acta Akad. Naturf. Halle, 1879, p. 200, pl. 2. fig. 18.

♀. *Charaxes guderiana*, Butler, P. Z. S. 1893, p. 648; Trimen, P. Z. S. 1894, pl. v. fig. 8.

♀, Deep Bay, Jan. 17th, 1896.

“Taken feeding upon over-ripe bananas in my veranda;” contained a “prodigious quantity of bright emerald-green ova” (*R. C.*).

13. CHARAXES MANICA.

♀. *Charaxes manica*, Trimen, P. Z. S. 1894, p. 43, pl. vi. fig. 9.

♂, Kapora, Songwe plain, N.W. Nyasa, March 3rd, 1895 (*J. B. Yule*); ♀, Mtambwi Hill, Deep Bay, July 1st, 1895.

The female is larger than in Mr. Trimen’s figure, and, on the upper surface, reminds one strongly of *C. bohemannii* ♀; it is a good deal shattered, having evidently been long on the wing. Mr. Crawshaw says of it:—“A rare and almost impossible insect

to take: it flies high and fast, and thus is the only specimen I have ever had a chance of taking." I now have no doubt that one of the males recorded in my paper in the 'Annals and Magazine of Natural History,' 1896, xviii. p. 68, as "*C. ethalion* (Eastern type)," and taken on the Upper Leya, on the same day as the male above noted, belongs to this species; but when identifying it I had no female for comparison.

14. CHARAXES LEONINUS.

Charaxes leoninus, Butler, P. Z. S. 1895, p. 253, pl. xv. fig. 2.
♂, Lower Nyika, June 14th, 1895.

15. CHARAXES ZOOLINA.

Nymphalis zoolina, Westwood & Hewitson, Gen. Diurn. Lep. pl. liii. fig. 1 (1850).

♂, Mpimbi, Upper Shiri River, March 24th, 1896.

A much-shattered example, but the first we have received from Nyasa-land.

16. PANOPEA HELIOGENES. (Plate XLI. fig. 2.)

Panopea heliogenes, Butler, Ann. & Mag. Nat. Hist. ser. 6, vol. xviii. p. 69 (1896).

♀, MitANJI, W. of Deep Bay, May 19th, 1895.

17. HYPOLIMNAS MISIPPUS.

Papilio misippus, Linnaeus, Mus. Lud. Ulr. p. 264 (1764).

♂♂, ♀, Deep Bay, Feb. 5th, 6th, 8th, 11th, 27th, and 29th, 1896.

18. JUNONIA PELASGIS.

Vanessa pelasgis, Godart, Enc. Méth. ix., Suppl. p. 820 (1823).

♀, Kasungu Mountain, 7425 feet alt., Nyika, March 2nd, 1896.
"Emerald-green ova" (*R. C.*).

19. JUNONIA ARCHESIA.

Papilio archesia, Cramer, Pap. Exot. iii. pl. cccix. figs. D, E (1782).

Henga, W. of Lake Nyasa, June 26th, 1895.

20. JUNONIA CALESCENS.

Junonia calescens, Butler, P. Z. S. 1893, p. 652.

Mtambwi Hill, January 6th; Deep Bay, Feb. 5th, 6th, 11th, 15th, and 21st, 1896.

21. JUNONIA CUAMA.

Junonia cuama, Hewitson, Exot. Butt. iii., *Jun.* pl. 1. figs. 2, 3 (1864).

Mtambwi Hill, July 1st, 1895.

Said to be the extreme dry-season form of *J. simia*, but we have it from Zomba taken in the wet season.

22. JUNONIA TRIMENI.

Junonia trimenii, Butler, P. Z. S. 1893, p. 651, pl. lx. fig. 4.

♂, ♀, Kondowi, 4000 feet alt., Nyika, Feb. 21st, 1896.

Said to be the form occurring between the wet and dry seasons; but, from what Mr. Crawshay says of Nyika, there ought to be no dry-season forms there. At Zomba it occurs (in company with *J. simia*) in July and (in company with both *J. simia* and *J. cuama*) in December: indeed, if we had a larger series of each of these species, I believe it would be possible to prove that they always fly simultaneously. The female of *J. trimeni* noted above has dry-season characters on the under surface.¹

23. JUNONIA SIMIA.

Precis simia, Wallengren, Kongl. Svenska Vetensk.-Akad. Handl. 1857, p. 26.

Deep Bay, Feb. 13th and 23rd, 1896.

24. JUNONIA TUGELA.

Precis tugela, Trimen, Trans. Ent. Soc. London, 1879, p. 334; South Afr. Butt. vol. i. p. 241, pl. iv. fig. 5 (1887).

♂, Mtambwi Hill, Deep Bay, July 1st, 1895.

This makes the second dated example which we have received, the first dated specimen having been obtained in September: on the other hand, *J. aurorina* (which might well be the wet-season form of *J. tugela*) appears, from our dated specimens, to fly from December to April. In South Africa Mr. Trimen records specimens of *J. tugela* as taken in March and May; whether the dry season commences so early as March on the Tugela River I do not know.

25. JUNONIA CLELIA.

Papilio clelia, Cramer, Pap. Exot. i. pl. xxi. E, F (1779).

Deep Bay, February 1st, 1896.

26. JUNONIA BOÖPIS.

Junonia boöpis, Trimen, Trans. Ent. Soc. London, 1879, p. 331.

♀, Luvira River, Nyasa to Tanganyika Road, August 23rd, 1895.

27. JUNONIA CEBRENE.

Junonia cebrene, Trimen, Trans. Ent. Soc. London, 1870, p. 353.

Deep Bay, Feb. 5th, 8th, and 15th, 1896.

28. JUNONIA NATALICA.

Precis natalica, Felder, Wien. ent. Monatschr. iv. p. 106 (1860).

♀, Deep Bay, March 10th, 1896.

"Bright green ova" (*R. C.*).

¹ Why a pair taken on the same day should differ in the features supposed to characterize the two seasons, and in a country where it is never really dry, is a riddle which I do not pretend to solve.—A. G. B.

29. PROTOGONIOMORPHA ANACARDII.

Papilio anacardiæ, Linnæus, Mus. Lud. Ulr. p. 236 (1764).

Namitembo, Zomba Mountain, March 25th; Chiradzulu, Shiri Highlands, March 30th, 1896.

30. HYPANARTIA HIPPOMENE.

Hypanartia hippomene, Hübner, Samml. exot. Schmett. ii. pl. 25. figs. 3, 4 (1806).

♀, Kantorongondo Mountain, Nyika, June 30th, 1895; ♂ ♂, ♀, Kasungu Mountain, 7425 feet alt., Nyika, March 3rd, 4th, and 5th, 1896.

♀, "Having an extraordinary quantity of grass-green ova" (*R.C.*).

31. HYPANARTIA SCHONEIA.

Eurema schoneia, Trimen, Trans. Ent. Soc. London, 1879, p. 329; South Afr. Butt. i. p. 207, pl. iv. fig. 1 (1887).

♂ ♂, Kasungu Mountain, 7200 feet alt., Nyika, March 3rd and 4th, 1896.

My supposition (*P. Z. S.* 1895, p. 727) that this might prove to be the dry-season form of *H. hippomene* (since confidently asserted to be the fact, by a practical collector) is now shown to be incorrect, inasmuch as not only were both species caught on the same mountain on two successive days, but at that time of year which might perhaps be called the rainy season, were it not that there appears to be no really dry season in Nyika.

32. EUPHLEDRA NEOPHRON.

Romaleosoma neophron, Hopffer, Ber. Verh. Ak. Berl. 1855, p. 640; Peters' Reise nach Mossamb., Zool. v. p. 386, pl. xxii. figs. 1, 2 (1862).

♂, Kapora, Songwe plain, in banana-grove, March 6th, 1895; ♀ ♀, Leya, Deep Bay, June 4th; Lupembi, W. coast of Lake Nyasa, in shady banana-grove, August 19th, 1895; ♂, ♀, Mpiimbi, Upper Shiri River, March 24th and 25th, 1896.

33. EUXANTHE WAKEFIELDI.

Godartia wakefieldii, Ward, Ent. Month. Mag. x. p. 152 (1873); Afr. Lep. pl. 6. fig. 3 (1874).

Nkata Bay, W. coast of Lake Nyasa, March 14th, 1896.

34. HAMANUMIDA DÆDALUS.

Papilio dædalus, Fabricius, Syst. Ent. p. 482 (1775).

♀, Deep Bay, Feb. 17th, 1896.

35. METACRENIS CRAWSHAYI.

Crenis crawshayi, Butler, *P. Z. S.* 1893, p. 654, pl. lx. fig. 5.

♀, Fuleriva forest, Deep Bay, Feb. 28th, 1896.

• "Full abdomen: one fully-developed ovum, pinkish-coloured" (*R. C.*).

36. *METAORENIS ROSA*.

Crenis rosa, Hewitson, Ent. Month. Mag. xiv. p. 82 (1877).

♂, Deep Bay, Oct. 17th, 1895.

"Rarely met with and very difficult to take: flies swiftly with gliding flight, and perches high" (*R. C.*).

37. *PSEUDARGYNNIS HEGEMONE*.

Argynnis hegemone, Godart, Enc. Méth. ix. p. 258 (1819).

♂, Mtambwi Hill, Deep Bay, July 1st, 1895.

38. *ARGYNNIS SMARAGDIFERA*.

Argynnis smaragdifera, Butler, P. Z. S. 1895, p. 629, pl. xxxv. figs. 1, 2.

♀, Cheni-Cheni Mountain, 7400 feet alt., Nyika, June 30th, 1895.

♂♂, ♀♀, Kasungu Mountain, 7425 feet alt., Sept. 2nd, 1893; March 1st to 5th, 1896.

The ova of the females are said to vary from yellow to orange in colour.

The following description of the egg of this species was made by Mr. F. W. Frohawk from a single specimen found attached to a female obtained by Consul Sharpe at Zomba:—"The ovum, of the usual *Argynnis* form, conical in shape and measuring $\frac{3}{4}$ inch high, with about twenty longitudinal keels, irregular and varying in length; some running for only two-thirds the distance from base to apex, others terminating before reaching the summit, eight only extending the entire length. It is ribbed transversely by about twenty in number, the ribs being irregularly distributed and widely separated near the summit, gradually becoming closer and shallower until finally disappearing at the base.

"In general structure this egg very closely resembles that of *A. selene* (very much more than that of either *A. euphrosyne* or *lathonia*), the number and formation of the keels and ribs being similar in both species. It differs most from *A. lathonia*, *A. euphrosyne* being intermediate between *A. smaragdifera* and *A. lathonia*."

39. *NEPTIS INCONGRUA*.

♀. *Neptis incongrua*, Butler, P. Z. S. 1896, p. 112, pl. vi. fig. 2.

♂♂, Kasungu Mountain, 6200 to 7425 feet alt., Nyika, March 1st, 3rd, and 5th, 1896.

The male sometimes differs from the female in having the ground-colour of the under surface mahogany-red.

40. *NEPTIS AGATHA*.

Papilio agatha, Cramer, Pap. Exot. iv. pl. cccxxvii. A, B (1782).
Deep Bay, March 6th, 1896.

41. *PLANEMA SCALIVITTATA*. (Plate XLI. fig. 3.)

Planema scalivittata, Butler, Ann. & Mag. Nat. Hist. ser. 6, vol. xviii. p. 159 (1896).

Kasungu Mountain, 7425 feet alt., Nyika, March 1st, 1896.

42. *ACRÆA ANACREON*.

Acraea anacreon, Trimen, Trans. Ent. Soc. London, 1868, p. 77, pl. vi. figs. 3-5.

Var. *Acraea bomba*, H. G. Smith, Ann. & Mag. Nat. Hist. ser. 6, vol. iii. p. 128 (1889); Rhop. Exot. i., *Acraea* pl. iii. figs. 5, 6 (1892).

Typical form, Chuona River (Mwewe's town), Unyika, Sept. 15th, 1895.

Var. *Acraea bomba*. Same locality and date.

43. *ACRÆA GUILLEMEI*, var. *PERIPHANES*.

Acraea periphanes, Oberthür, Études, livr. xvii. p. 20, pl. 2. fig. 23 (1893).

Kondowi, 4000 feet alt., Nyika, Feb. 21st, 1896.

A somewhat aberrant example, slightly larger than usual, in some respects intermediate between typical *A. guillemei* and *A. periphanes*, but with the spots on the border of the secondaries strongly developed.

44. *ACRÆA DOUBLEDAYI*, var. *DIRCÆA*, Butl. (*nee* Westw.).

Acraea doubledayi, Guérin, Lefebvre's Voy. en Abyss. vi. p. 378 (1847).

♂, Nyika, 4500 feet alt., west of Lake Nyasa, June 26th; ♀, Luwira River, Nyasa to Tanganyika Road, Sept. 19th, 1895.

This is the form with a black apical patch, answering to Westwood's description; but Mr. Marshall, who has examined the type, informs me that the latter does not differ from *A. caldarena*.

45. *ACRÆA CALDARENA*, var. *NELUSCA*.

Acraea caldarena, Hewitson, Ent. Month. Mag. xiv. p. 52 (1877).

Var. *Acraea nelusca*, Oberthür, Études, livr. iii. p. 25, pl. 2. figs. 2, 3 (1878).

♀, Deep Bay, Feb. 8th, 1896.

46. *ACRÆA ASEMA*.

Acraea asema, Hewitson, Ent. Month. Mag. xiv. p. 52 (1877); Trimen, P. Z. S. 1894, p. 24, pl. iv. figs. 3, 3a.

Loangwa River, Senga, Sept. 3rd, 1895.

47. *ACRÆA INSIGNIS*.

Acraea insignis, Distant, P. Z. S. 1880, p. 184, pl. ix. fig. 4.

Kasungu Mountain, 5945 feet alt., Nyika, Feb. 29th; and 7200 feet alt., March 5th, 1895.

48. *ALÆNA RETICULATA*. (Plate XLI. fig. 4.)

Athena reticulata, Butler, Ann. & Mag. Nat. Hist. ser. 6, vol. xviii. p. 160 (1896).

♂, Kasungu Mountain, 5400 feet alt., Nyika, March 5th, 1896; ♀, Mtambwi Hill, Deep Bay, Jan. 6th, 1896.

49. POLYOMMATUS BÆTICUS.

Papilio beticus, Linnæus, Syst. Nat. i. 2, p. 789 (1767).

♂, Deep Bay, May 2nd, 1895; ♀, Feb. 15th, 1896;
♂, Loangwa River, Senga, Sept. 9th, Henga, 3200 feet alt.,
Nov. 7th, 1895.

50. CATOCHRYSOPS GLAUCA.

Lycæna glauca, Trimen, South Afr. Butt. ii. p. 21 (1887).

♂♂, ♀♀, Fuleriva forest, Deep Bay, Feb. 28th and
March 6th, 1896.

51. CATOCHRYSOPS ASTERIS.

Polyommatus asteris, Godart, Enc. Méth. ix. p. 657 (1819);
Trimen, South Afr. Lep. ii. pl. viii. figs. 3, 3a (1887).

♀, Mtambwi Hill, Deep Bay, Jan. 1st, 1896.

52. CATOCHRYSOPS PERPULCHRA.

♀. *Lycæna perpulchra*, Holland, 'Entomologist,' xxv. Suppl. p. 90
(1892); Proc. Unit. States Nat. Mus. xviii. p. 239, pl. vii. fig. 7
(1895).

♂♀. *Castalius hypoleucus*, Butler, P. Z. S. 1893, p. 660.

Lycæna exclusa, Trimen, P. Z. S. 1894, p. 47.

♀, Henga, W. of Lake Nyasa, Oct. 26th, 1895.

"Caught in my hat, out in the early morning. Bright emerald-
green ova" (*R. C.*).

Now that a really good example has come to hand, I find that
this species is undoubtedly a *Catochrysops* of the *C. asteris* group.

53. EVERES JOBATES.

Lycæna jobates, Hopffer, Ber. Verh. Ak. Berlin, 1855, p. 642;
Peters' Reise nach Mossamb. v. p. 408, pl. 26. figs. 9, 10 (1862).

♂♂, ♀, Kondowi, 4000 feet alt., Nyika, Feb. 21st;
♂, Kasungu Mountain, 5345 feet alt., Feb. 29th; ♀♀, 7425
feet, March 1st and 2nd; ♂, 7200 feet, Nyika, March 5th; ♀,
Mitanji, W. of Deep Bay, May 19th, 1895.

♀, "Light green ova" (*R. C.*).

54. EVERES MAHALLOKOENA.

Lycæna mahallokoena, Wallengren, Kongl. Svensk. Vet.-Akad.
Handl. 1857, Lep. Rhop. Caffr. p. 41; Trimen, Trans. Ent. Soc.
Lóndon, 1870, p. 366, pl. vi. figs. 7, 8.

Lisenga, 4500 feet alt., Mbalizi valley, Unyika, Sept. 16th, 1895;
Kondowi, 4000 feet alt., Nyika, Feb. 21st, 1896.

55. TARUCUS PLINIUS.

Hesperia plinius, Fabricius, Ent. Syst. iii. 1, p. 284 (1793).

♂, Henga, Nov. 20th, 1895; ♀, Kasungu Mountain, 6200 feet
alt., Nyika, March 1st; Deep Bay, Feb. 23, 1896.

56. AZANUS SIGILLATUS.

Lampides sigillatus, Butler, Ann. & Mag. Nat. Hist. ser. 4, vol. xviii. p. 483 (1876).

♂ ♂, Henga, W. of Lake Nyasa, Nov. 20th, 1895.
 "Perches on branches of trees" (R. C.).

57. NACADUBA SICHELA.

Lycæna sichele, Wallengren, Kongl. Svensk. Vet.-Akad. Handl. 1857, Lep. Rhop. Cafr. p. 37.

♂ ♂, Henga, W. of Lake Nyasa, Nov. 20th, 1895.
 "Very active on the wing" (R. C.).

In Mr. Trimen's description of this rare butterfly the upper surface is said to be "silky dark-violaceous"; but I find that the colouring is particularly liable to deepen in the damping-pan (often in patches): an example which has wholly escaped this discoloration, if one sits between it and the light, is of the same beautiful lilac as the European "Common Blue,"¹ with a narrow, tapering blackish border to the outer margin; but if held between one and the light, it changes to a sickly greenish grey, more nearly approaching the colouring of *Plebeius orbitulus*.

58. CASTALIUS CALICE.

Lycæna calice, Hopffer, Ber. Verh. Ak. Berl. 1855, p. 642; Peters' Reise nach Mossamb. v. p. 405, pl. 26. figs. 4, 5 (1861).

Lower Nyika, June 14th, 1895.

59. LYCÆNESTHES ADHERBAL.

♀. *Lycæna adherbal*, Mabille, Bull. Soc. Zool. France, 1877, p. 217.

♂. *Lycænesthes lunulata*, Trimen, P. Z. S. 1894, p. 51, pl. vi. fig. 12.

♀, Kondowi, 4000 feet alt., Nyika, Feb. 21st, 1896.
 "Emerald-green ova" (R. C.).

60. LYCÆNESTHES LIODES.

♂. *Lycænesthes liodes*, Hewitson, Trans. Ent. Soc. London, 1874, p. 349.

♀, Kondowi, Nyika, Feb. 2nd, 1896.

61. ZIZERA KNYSNA.

Lycæna knysna, Trimen, Trans. Ent. Soc. London, 3rd ser. vol. i. p. 282 (1862).

♂ ♂, Deep Bay, Feb. 24th and 26th, March 8th, 1896.

"Never plentiful; an odd one met with here and there. A very low flier, hovers within an inch or so of the ground, and has to be dredged off it almost with the net" (R. C.).

¹ I believe this species now stands under the name of *Cupido icarus*.

62. *ZIZERA GAIKA*.

Lycæna garka, Trimen, Trans. Ent. Soc. London, 3rd ser. vol. i. p. 403 (1862).

♂♂, Luvira River, Nyasa to Tanganyika Road, August 23rd, 1895.

63. *ZIZERA LUCIDA*.

Lycæna lucida, Trimen, Trans. Ent. Soc. London, 1883, p. 348.

♂, Virauli Hill, Nyasa to Tanganyika Road, August 22nd; ♀♀, Chuona River (Mwewe's town), Unyika, Sept. 15th, 1895; Deep Bay, Feb. 11th and 24th, 1896.

64. *PLEBEIUS TROCHILUS*.

Lycæna trochilus, Freyer, Neuere Beitr. v. pl. 440. fig. 1 (1844).

Deep Bay, Feb. 6th, 14th, and 24th, 1896.

65. *SCOLITANTIDES STELLATA*.

Lycæna stellata, Trimen, Trans. Ent. Soc. London, 1883, p. 349.

Kasungu Mountain, 5400 feet alt., Nyika, March 5th, 1896.

CYCLYRIUS, gen. nov.

Nearly allied to *Hyrius*, but with rounded wings; the secondaries without tails; neuration as in *Hyreus*. Type, *Polyommatus webbianus*. This genus will contain the species *P. webbianus* and *H. æquatorialis*, hitherto referred to *Hyreus*, as well as the following:—

66. *CYCLYRIUS JUNO*, sp. n. (Plate XLI. fig. 5.)

Allied to *C. webbianus*, the male above lilac, bluer at base, with broad cupreous-brown costal and external borders; fringes white, spotted with brown at the extremities of the nervures; secondaries with the abdominal area somewhat greyish; an oval submarginal black ocellus with shining lilac iris on first median interspace, and indications of a second smaller similar ocellus near anal angle on interno-median interspace. Body above black, clothed with silver hair; a silvery-white line on each side of the frons, immediately in front of the eyes; collar clothed with golden hair: under surface of primaries golden brown, the markings not very distinct, but consisting of two pale-edged, quadrate, slightly darker spots crossing the discoidal cell, and a belt of similar character across the disc, its uppermost division with white outer edge and followed by a creamy white diffused subapical spot; fringe creamy white, spotted with blackish: secondaries white, speckled with blackish at the base and mottled and banded with copper-brown almost exactly in the pattern of *C. æquatorialis*; a black oval spot, enclosing a metallic green dash, representing the ocellus of the upper surface. Body below densely covered with white hair or scales, the legs brownish above, white below.—Female above cupreous brown, with fringe and ocelli as in male; under surface with brown-centred white

marginal spots, otherwise as in the male. Expanse of wings, ♂ 25 millim., ♀ 24 millim.

♂ ♂, ♀, Kasungu Mountain, 7075-7425 feet alt., Nyika, March 1st and 2nd, 1896.

67. *HYREUS VIRGO*.

Hyreus virgo, Butler, P. Z. S. 1896, p. 121, pl. vi. fig. 1.

♂, Kasungu Mountain, 5490 feet alt., Nyika, Feb. 29th, 1896.

68. *HYREUS PALEMEN*.

Papilio palemon, Cramer, Pap. Exot. iv. pl. cccxc. E, F (1782).

Cheni-Cheni Mountain, 7400 feet alt., Nyika, June 30th; Mbalizi Valley, 4375 feet alt., Unyika, August 25th, 1895; Kasungu Mountain, 7425 feet alt., Nyika, March 4th, 1896.

69. *URANOTHAUMA POGGEL*.

Plebeius poggei, Dewitz, Nov. Act. Acad. Leop.-Carol. Nat. Cur. xli. 2, pl. xxvi. fig. 7 (1879).

♂, Lisenga, 4500 feet alt., Mbalizi Valley, Unyika, Sept. 10th, 1895.

70. *URANOTHAUMA CRAWSHAYI*.

Uranothauma crawshayi, Butler, P. Z. S. 1895, p. 631, pl. xxxv. figs. 6, 7.

♂ ♀, Kasungu Mountain, Sept. 2nd, 1893, March 1st, 3rd, and 5th, 1896, Nyika.

71. *CAPYS CONNEXIVA*, sp. n. (Plate XLI. fig. 6.)

Intermediate in character between *C. alpheus* and *C. disjunctus*; the male above dark cupreous brown, with bronze reflections; the cilia coloured as in *C. disjunctus*, with red basal line; the sericeous tawny area of the primaries much smaller than in the latter species, sometimes represented, as in *C. alpheus*, by a mere transverse belt, but more often diffused basally and occasionally forming a uniform triangular patch; secondaries with a discal patch not reaching the costa, but sometimes extended downwards to the anal tail, and occasionally an imperfect external border of sericeous tawny; below almost as in *C. disjunctus*. The female is very like that sex of the latter species on both surfaces, only the ground-colouring above is lavender, shading into brown on the outer border and into pale blue and greenish grey towards the base. Expanse of wings, ♂ 36-42 millim., ♀ 40 millim.

♂ ♂, Kasungu Mountain, 5945 feet alt., Nyika, February 29th; ♀, 5000 feet alt., March 6th, 1896.

One perfect male, four more or less worn, and a somewhat shattered female were obtained.

72. *AXIOCERCES AMANGA*.

Zeritis amanga, Westwood, in Oates's Matabele Land, p. 351 (1881).

♂, Mbalizi Valley, Unyika, August 25th, 1895.

73. AXIOCERCES PERION.

Papilio perion, Cramer, Pap. Exot. iv. pl. cccclxxxix. B, C (1782).

♀, Luvira River, Nyasa to Tanganyika Road, August 23rd, 1895; Deep Bay, Feb. 21th, 1896.

74. CIGARITIS ABBOTTI.

Chrysophanus abbotii, Holland, 'Entomologist,' xxv. Suppl. p. 90 (1892); Proc. Unit. States Nat. Mus. vol. xviii. p. 240, pl. vii. fig. 4 (1895).

♀, Kasungu Mountain, Nyika, March 2nd, 1896.

"Emerald-green ova" (*R. C.*).

75. SPINDASIS CAFFER.

Aphnæus caffer, Trimen, Trans. Ent. Soc. London, 1868, p. 88, and 1870, p. 368.

♂ ♀, Kondowi, Lower Nyika, Feb. 21st; ♂, Kasungu Mountain, 5395 feet alt., Nyika, Feb. 29th, 1896.

"♀, Bright green ova" (*R. C.*).

76. SPINDASIS HOMEYERI.

Aphnæus homeyeri, Dewitz, Dent. ent. Zeit. xxx. p. 429, pl. 2. figs. 5 a-c (1886).

♀, Kambwiyi, Lower Nyika, Nov. 29th, 1895.

"Large quantity of emerald-green ova" (*R. C.*).

77. LACHNOCNEMA BIBULUS.

Hesperia bibulus, Fabricius, Ent. Syst. iii. 1, p. 307 (1793).

♂, Virauli Hill, Nyasa to Tanganyika Road, August 22nd, 1895.

78. VIRACIOLA ANTA.

Lycæna anta, Trimen, Trans. Ent. Soc. London, ser. 3, vol. i. p. 402 (1862).

♀, Luvira River, Nyasa to Tanganyika Road, Sept. 19th, 1895; Kondowi, 4000 feet alt., Nyika, Feb. 21st, 1896.

The example from Kondowi is somewhat aberrant, of a clear lavender, bluish towards the base, and with narrower and more defined brown borders than usual; the bands on the under surface are also narrow. The Luvira River example contained "bright green ova," according to Mr. Crawshay.

79. RAPALA ZELA.

Hypolyrcæna zela, Hewitson, Ill. Diurn. Lep., Suppl. p. 14, pl. 5. figs. 41, 43 (1869).

♂, Kasungu Mountain, 5345 feet alt., Nyika, Feb. 29th, 1896.

80. IOLAUS AURICOSTALIS, sp. n. (Plate XLI. fig. 7.)

♀. Nearly allied to *I. philippus*, above ash-grey; primaries with the costal margin, especially at the base, bright golden-ochreous, veins dusky, external border smoky grey, preceded by an arched increasing series of six whitish spots, edged in front with smoky

grey: a whitish annulus at external angle; secondaries nearly as in *I. philippus*, but with a much larger, more brightly orange spot above the outer tail; body blackish, head above and collar dusky orange: under surface chalky whitish, with white-edged dark grey markings tinged with orange towards the abdominal margin of secondaries; in general character these resemble the markings in *I. philippus*, but the discal interrupted line is more incurved on the primaries and more irregular (approaching that of *I. bowkeri* in form) on the secondaries; the orange spot above the outer tail is large and conspicuous. Expanse of wings 35 millim.

♀, Kasitu River, Angoni country, W. of Lake Nyasa, June 18th, 1895.

Unfortunately only a single example, slightly chipped towards the anal angle of both hind wings, was obtained.

81. IOLAUS CÆCULUS.

Iolauæ cæculus, Hopffer, Ber. Verh. Ak. Berlin, 1855, p. 642; Peters' Reise nach Mossamb. v. p. 402, pl. 25. figs. 12-14 (1862).

♂♂, ♀♀, Mtambwi Hill, Deep Bay, July 1st and Dec. 1st, 1895, Jan. 6th, Feb. 20th and 22nd, 1896.

"Fairly plentiful: a frequenter of upland forest" (*R. C.*).

The Nyasa specimens seem to vary more, as regards the width of the red bands on the under surface, than those from South Africa.

82. IOLAUS PALLENE.

Myrina pallene, Wallengren, Kongl. Svensk. Vet.-Akad. Handl. 1857, Lep. Rhop. Caffr. p. 36.

♀♀, Leangwa River, 2160 feet alt., Senga, August 30th, 1895.
"Bright green ova" (*R. C.*).

83. MYLOTHRIS AGATHINA.

Papilio agathina, Cramer, Pap. Exot. iii. pl. ccxxxvii. D, E (1782).

♀, Deep Bay, Lake Nyasa, Feb. 5th, 1896.
"Enormous number of yellow ova" (*R. C.*).

84. MYLOTHRIS CRAWSHAYI.

Mylothris crawshayi, Butler, P. Z. S. 1896, p. 124, pl. vi. fig. 4.

♂♂, Kasungu Mountain, Nyika, 7425 feet alt., March 2nd and 3rd, 1896.

85. NYCHITONA ALCESTA.

Papilio alcesta, Cramer, Pap. Exot. iv. pl. cclxxix. A (1782).

Mpimbi plain, Upper Shiri River, March 24th and 25th, 1896.
The females contained "emerald-green ova, oblong and pointed" (*R. C.*).

86. COLIAS EDUSA.

Papilio edusa, Fabricius, Mant. Ins. ii. p. 23 (1787).

Kasungu Mountain, Nyika, Sept. 2nd, 1893; Cheni-Cheni Moun-

tain, 6500 feet June 27th, 7400 feet June 30th; Kondowi, Lower Nyika, Nov. 30th, 1895; Kasungu Mountain, 5945 feet Feb. 29th, 7425 feet March 2nd, 7200 feet March 5th, 1896.

Most of the specimens are of the ordinary European type.

87. *TERIAS LEONIS*.

Terias leonis, Butler, Ann. & Mag. Nat. Hist. ser. 5, vol. xvii. p. 222, pl. v. fig. 6 (1886).

♂, Kondowi, 4000 feet alt., Nyika, Feb. 21st, 1896.

This is the first example I have seen from Central Africa.

88. *TERIAS REGULARIS*.

Terias regularis, Butler, Ann. & Mag. Nat. Hist. ser. 4, vol. xviii. p. 486 (1876).

♂, Kasungu Mountain, 7425 feet alt., Nyika, March 3rd, 1896

89. *TERACOLUS MUTANS*.

♀. *Teracolus mutans*, Butler, Ann. & Mag. Nat. Hist. ser. 4, vol. xix. p. 459 (1877); ♂. P. Z. S. 1896, p. 126.

♂ ♀, Mpimbi, Upper Shiri River, March 24th and 25th, 1896. Dry-season form.

Differs in the great enlargement of the discal series of spots on the secondaries, these being salmon-buff tinted in the male, and sulphur-yellow in the female; the primaries in the latter sex are also coloured more nearly as in the male, but the salmon-buff area is washed with yellow; on the under surface the whole colouring of the male and the bands upon the yellow area of the female are deeper and redder.

♂, Mwankanka, Loangwa River, Senga, Sept. 7th, 1895;

♀, Loangwa Valley forest, Senga, August 30th, 1895.

The female contained "pale orange ova" (*R. C.*).

When describing the male of *T. mutans* I compared it with *T. vesta* (meaning the southern species usually so-called); but *T. vesta* is an Abyssinian species, identical with *T. vellela* of M. Lucas, and differs from the South-African butterfly in the much brighter colouring, with somewhat differently formed and much redder bands on the under surface of the secondaries: the southern species is only the wet-season form of *T. argillaceus*, and is *T. vesta* of Trimen (*nec* Lucas); the latter, on the under surface, is much nearer to *T. aurigineus*, whereas *T. argillaceus* is certainly the southern representative of *T. mutans*.

90. *TERACOLUS AURIGINEUS*, var. *VENUSTUS*.

Teracolus venustus, Butler, P. Z. S. 1888, p. 94.

♂♂, ♀♀, Mbalizi Valley, 4375 feet alt., Unyika, August 25th; ♂, Mweve's town, Nyika, August 26th; ♀, Kaun Guzi, 4620 feet, Unyika, August 27th; ♂, Chuona River (Mweve's town), Sept. 15th, 1895.

At the last-mentioned locality Mr. Crawshay speaks of this butterfly as being plentiful; yet he seems only to have captured

one male: it is the dry-season form of *T. aurigineus*, and until this collection came to hand was only represented by the typical male example from Kilima-njaro in the Museum series; nor have I seen it in any other collection.

91. TERACOLUS OPALESCENS.

♀. *Teracolus opalescens*, Butler, Ent. Month. Mag. xxiii. p. 30 (1886); ♂. P. Z. S. 1896, p. 125.

♂. Dry-season form.

On the upper surface this only differs from the male of the wet-season form in the absence of the black marginal spots to the secondaries; on the under surface, however, it differs in having the apical area and costal margin of the primaries and whole surface of secondaries flesh-pink, tinted on the costal borders and internervular folds with ochreous; the disc of the secondaries crossed by a series of brown dots. Expanse of wings 51 millim.

Bangara, W. coast of Lako Nyasa, August 18th, 1895. "If once missed, is exceedingly difficult to take" (*R. C.*).

The arrival of this example is particularly interesting to me, for it shows that my belief in the local constancy of some of the named forms of the *T. eris* group is, so far, borne out, the seasonal forms of this Eastern and Central African type being both easily separable from the more southern examples.

The type of *T. eris* was obtained at Ambukohl, in Lower Nubia, and is probably the true male of my *T. abyssinicus*, of which we only possess females: the figure agrees most closely with a male (wet-season form) received from Kilima-njaro, the orange apical spots on the primaries being short, the outer edge of the upper portion of the white area, beyond the cell, less oblique than in the southern forms, or than in *T. opalescens*, and the black costal belt of the secondaries extending on the disc to below the second subcostal branch; it, however, differs in having a small white spot near centre of outer margin of primaries, a character which may be variable. The southern forms are certainly not typical *T. eris*; nor can *T. johnstoni* be correctly called the dry-season form of the Natal examples presented to us by Mr. E. C. Buxton, inasmuch as the latter have the under surface of the wings pink, and must therefore themselves be the dry-season form of Mr. Trimen's *T. eris* (of which he says: "Underside—Whitish or yellowish-white") and identical with his variety A.

If, then, certain Lepidopterists prefer to regard the representative forms of *T. eris* as mere local phases of one species, the fact that each of them has its dry- and wet-season forms distinct from the others gives them at least a claim to be regarded as subspecies and to retain distinctive names.

92. TERACOLUS SUBFASCIATUS.

♂. *Teracolus subfasciatus*, Swainson, Ill. 2nd ser. iii. pl. 115 (1833).

♂, Mweniandas, Nyasa to Tanganyika plateau, Dec. 15th, 1895. (Dry-season form.)

93. TERACOLUS REGINA.

♂ ♀. *Anthocharis regina*, Trimen, Trans. Ent. Sec. London, 3rd ser. i. p. 520 (1863).

Teracolus regina, Trimen, South Afr. Butt. ii. pl. xi. fig. 3, ♀ (1889).

♂, Loangwa Valley Pass, 4090 feet alt., Senga, August 28th; ♀, Mbalizi Valley, Unyika, Sept. 16th, 1895.

The female contained "pale yellow ova"; she was somewhat worn, having probably been long on the wing.

The receipt of these specimens, the male taken in the dry season and the female before the rains had fairly set in, is very interesting, as supporting the assertion that *T.anax* is the wet-season form of *T. regina*. The entire absence of the latter from any of the collections previously received by us from British Central Africa had led me to regard this statement with considerable doubt; but now I see no reason for rejecting it.

94. TERACOLUS PHEGYAS.

Anthocharis phlegyas, Butler, P. Z. S. 1865, p. 431, pl. xxv. figs. 3, 3a (1865).

Wet season, ♂♂, Deep Bay, March 9th, 1896.

Dry season, ♀♀, Loangwa Valley forest, August 30th, and Ntonga, Loangwa River, Senga, Sept. 13th, 1895.

After carefully studying the purple-tipped species, in relation to the question of seasonal dimorphism, I am forced to the conclusion that there is no reason for distinguishing the Eastern and Central African examples of *T. phlegyas* from those of the White Nile: they are slightly larger, but otherwise typical in both sexes.

T. phlegyas can hardly be a dry-season form of *T. imperator*, because the specimen of the male recorded above (and which is fairly typical) was obtained in the middle of the rains, whilst the females were obtained near the end of the dry season: on the other hand, we have a typical male of *T. imperator* taken in the middle of the dry season.

Furthermore, *T. imperator* cannot possibly be the *T. ione* of Godart, as assumed by my friend Trimen in his 'South African Butterflies.' Not only does the distribution of *T. imperator* render this highly improbable, but the description by M. Godart does not at all answer to it:—

T. ione.

1. Black apical border divided obliquely by a violet band rounded externally.
2. A conspicuous black discocellular spot on the primaries.
3. No transverse ray on under surface of secondaries.

T. imperator.

1. Apical area violet, narrowly bordered with black.
2. A very faintly indicated discocellular dot, or none at all.
3. A conspicuous oblique transverse ray on under surface of secondaries.

I do not doubt that M. Godart's description was made from a

somewhat worn example of the South-African *T. speciosus*, to which it approaches much more closely than to any other violet-tipped *Teracolus*: it is the only known species which can be accurately described as having the apical black border "divided transversely and obliquely by a violet band, very brilliant, rounded externally": it is moreover, in my opinion, worthy of consideration that Dr. Boisduval, who (in the *Pierinæ* especially) was apt to cut species very fine indeed, regarded the southern insect as typical *T. ione*, as there can be little doubt that the Doctor had examined the original type.

One fact, however, must not be lost sight of:—Mr. Trimen includes *T. jalone* in the synonymy of his *T. ione* and says that he does not consider it to be even a marked variety. Now *T. jalone* has a conspicuous discocellular spot on the primaries, and its wet-season form has no more ray on the under surface than exists in *T. speciosus*; only the apical border is conspicuously dusted with white scales, and the violet band is too close to the inner edge of the coloured apical area to be correctly spoken of as an oblique band crossing the border at apex. Mr. Trimen gives "White Nile" as the locality of my type of *T. jalone*, and that certainly was the locality on the specimen. Should not this have suggested to him the possibility of *T. jalone* being the dry-season male of *T. phlegyas*, rather than a hardly separable variation of *T. imperator*? We certainly have one or two specimens which tend to link *T. phlegyas* and *T. jalone*; and the two male examples taken on March 9th represent the spotted and unspotted types, although neither of them has the pink under surface with transverse ray of the typical dry-season form *T. jalone*.

95. TERACOLUS HILDEBRANDTI.

Callonæ hildebrandtii, Staudinger, Exot. Schmett. p. 44, pl. 23 (1884-88).

♂, Mtali, west coast of Lake Nyasa, Sept. 22nd, 1895.

A dry-season form of this species, which cannot easily be confounded with any form of *T. annæ*, but must stand between the latter and *T. eupompe*.

The dry-season form differs from the (typical) wet-season form in its superior size, the scarlet instead of orange colouring and greater width of the apical patch on the primaries, the greyer basal area and the pinky yellowish apical area of primaries and ground-colour of secondaries on the under surface; the black terminations to the nervures are also almost obliterated: it comes nearest to *T. annæ*, var. *wallengreni*, but the marginal spots are too small, the colouring below too yellow, and the scarlet above too pronounced.

96. TERACOLUS ACHINE, var. GAVISA.

Anthopsyche gavisæ, Wallengren, Kongl. Svensk. Vetensk.-Akad. Handl. 1857, Lep. Rhop. Caffr. p. 13.

♀, Mpimbi, Upper Shiri River, March 24th, 1896. "Pale yellow oblong ova" (*R. C.*).

97. TERACOLUS SIPYLUS.

Teracolus sipylus, Swinhoe, P. Z. S. 1884, p. 444, pl. xl. fig. 11.

♂, Kondowi, 4000 feet alt., Nyika, Feb. 21st, 1896.

This is supposed to be an extreme wet-season form of *T. evenina*: Mr. Trimen's note in his 'South African Butterflies,' vol. iii. p. 128, seems somewhat contradictory. Of *T. sipylus* he says:—"The male is inseparable from the larger darker specimens of male *evenina* . . . , though it is somewhat more heavily marked." I consider *T. sipylus* to be a distinct representative form.

98. TERACOLUS PROCNE.

Anthopsyche procne, Wallengren, Kongl. Svensk. Vetensk.-Akad. Handl. 1857, Lep. Rhop. Caffr. p. 12.

Mpata, west of Lake Nyasa, August 2nd, 1895.

Probably only a varietal form of *T. theogene*; but both are dry-season forms, of which it is extremely likely that *T. ocale*, *microcale*, *angolensis*, and *arethusa* are more or less localized wet-season forms.

99. TERACOLUS CINCTUS.

Teracolus cinctus, Butler, Ann. & Mag. Nat. Hist. ser. 5, vol. xii. p. 105 (1883).

Dry-season form ♂ ♀, Loangwa River, Senga, Sept. 5th and 13th, 1895.

Differs from the typical wet-season form in the reduction of the internal black streak on the primaries, which is represented by a greyish smear ending in a darker spot, and in the rosy colouring of the secondaries on the under surface.

100. TERACOLUS SUBFUMOSUS.

Teracolus subfumosus, Butler, P. Z. S. 1876, p. 139, pl. vi. fig. 3.

♂, Loangwa River, Senga, Sept. 12th, 1895.

This is doubtless a wet-season form of some other named *Teracolus* and allied to *T. eione*: it is not at all likely to be a form of the West-African *T. antigone*, unless the latter can be linked by a perfect series of intergrades to *T. eione*, which at present I am not prepared to admit to be a fact. If *T. antigone* and *T. eione* are distinct species (as claimed in the 'South African Butterflies'), the forms from Western Africa must be kept separate from those of the South. *T. phlegetonia* is allied to *T. eione*, but does not closely agree with it in pattern, though both represent the extreme wet-season types of the country which they inhabit. In like manner, *T. xanthus* will probably prove to be a wet-season form of *T. odysseus*, inasmuch as both forms inhabit the White Nile, and are so much alike that their proper females were originally transposed; the differences between them are similar to those which exist between *T. eione* and *T. subfumosus*, or between *T. phlegetonia* and *T. antigone*. As might be expected of West Coast forms, no

extreme dry-season types seem to occur: the pattern of *T. antigone* represents the latter, but the rosy colouring on the under surface, characteristic of Southern, Eastern, and Northern types, is wanting.

101. *TERACOLUS INCRETUS*.

♀. *Teracolus incretus*, Butler, Ent. Mouth. Mag. xviii. p. 146 (1881).

♂. *Callosune vulnerata*, Staudinger, Exot. Schmett. pl. 23.

♀, Kawembi, N.W. coast of Lake Nyasa, Sept. 23rd, 1895.

102. *BELENOIS THYSA*, var. *SABRATA*.

♂. *Belenois sabrata*, Butler, Trans. Ent. Soc. London, 1870, p. 526.

♂, Mtambwi Hill, west of Lake Nyasa, Feb. 20th; ♀, Mpimbi Plain, Upper Shiri River, March 25th, 1896.

"Oblong yellow ova" (*R. C.*).

The largest specimens of the species which I have seen, and, apparently, the only form taken in Nyasa-land. It differs from typical *B. thysa* in the narrower black border at apex of primaries and the more dentate-sinuate (rather than zigzag) character of the inner edge of the outer border; the subapical spots well separated from the border, though touching the black veins in the female. The type of *B. sabrata* was an unusually small example. A very curious female of *B. thysa*, with glaucous greyish apex of primaries and ground-colour to secondaries below, was obtained on the Chuona River (Mweve's), Unyika, August 26th, 1895.

103. *ERONIA LEDA*.

Dryas leda, Boisduval, Voy. de Deleg., App. p. 588 (1847).

♂, Mpimbi, Upper Shiri River, March 24th, 1896.

104. *PAPILIO PSEUDONIREUS*.

Papilio pseudonireus, Felder, Reise der Nov., Lep. i. p. 94 (1865).

Kasungu Mountain, 7425 feet alt., Nyika, March 1st to 4th, 1896.

105. *PAPILIO PHORCAS*.

♂. *Papilio phorcas*, Cramer, Pap. Exot. i. pl. ii. B, C (1775).

♂♂, ♀, Kasungu Mountain, 7425 feet alt., Nyika, March 1st, 1896.

"Fairly plentiful, but very difficult to take, as it flies high, skimming the trees, and rarely comes down within reach." The female contained "large spherical boiled-sago-coloured ova" (*R. C.*).

All the specimens were more or less shattered, the female with the same green bands and spots as the male; all the specimens with the subapical patch on the primaries rather smaller than in Western examples.

106. *PAPILIO HORRIBILIS*.

Papilio horribilis, Butler, Lep. Exot. p. 88, pl. xxxiv. fig. 2 (1872).

♂, Kasungu Mountain, 7425 feet alt., Nyika, March 1st, 1896.

"A pair only seen, floating round in the air, in an opening on the outskirts of a vast forest; spent something like half an hour in waiting to capture one; the other disappeared" (*R. C.*).

107. *SARANGESA ASTRIGERA*.

Sarangesa astrigera, Butler, P. Z. S. 1893, p. 669; Holland, l. c. 1896, pl. ii. fig. 8.

Fuleriva forest, Deep Bay, Feb. 28th and March 6th, 1896.

108. *SARANGESA MOTOZI*.

Pterygospidea motozi, Wallengren, Kongl. Svensk. Vetensk.-Akad. Handl. 1857, Lep. Rhop. Caffr. p. 53.

Virauli Hill, Nyasa to Tanganyika Road, August 22nd, 1895.

109. *SARANGESA PERTUSA*.

Sape pertusa, Mabille, C.R. Soc. Ent. Belg. 1891, p. lxxviii.

Henga, W. of Lake Nyasa, June 26th, and Loangwa River, Senga, Sept. 5th, 1895.

"Local, frequents shady nooks, holes, and hollows" (*R. C.*).

One example nearly approaches *S. motozi* on the upper surface, but differs in the absence of yellow-ochre blotches and spots on the under surface; other specimens barely differ (if at all) from *S. synestalmenus*, Karsch.

110. *SARANGESA HOLLANDI*, sp. n. (Plate XLII. fig. 1.)

♂. General form of *S. pertusa*, excepting that the costa of primaries is proportionately longer, and the outer margin consequently less arched and more oblique. Above golden-bronze-brown; all the vitreous white spots small and edged with blackish: primaries with two superposed vitreous spots at basal third of interno-median areole, two near the end of discoidal cell forming a broken >, two near base of median areoles, the lower one large and irregularly diamond-shaped, two black dots below the latter, the upper one with a white central point, three subapical spots (the first very small), and below them two blackish spots; fringe buff, excepting near external angle, where it is white, varied with blackish spots at the ends of the nervures and with a slender blackish subbasal line: secondaries with a small spot at the end of the cell, almost encircled by a series of ten spots, mostly with small vitreous centres; fringe brown at apex, sordid at anal angle, otherwise white, spotted with blackish at the end of each nervure: body darker than the wings, with two white dots at each side of the head against the eyes; antennæ smoky brown. Primaries below irrorated with pale lilac; the vitreous spots white-edged and therefore apparently larger, those in the cell united so as to form a perfect >; internal border whitish brown: secondaries whitish

lilac, irrorated with bronze-brown on costal area and external border almost to anal angle; vitreous spots with golden-brown margins; fringe as above: body below white, faintly lilacine at the sides of the pectus and brown at the sides of the venter. Expanse of wings 41 millim.

Mbalizi Valley, Unyika, August 25th, 1895.

This species has such a familiar aspect, that I had hoped, with the assistance of Dr. Holland's most valuable monograph, to be able to find a published name for it; but, not having done so, I have taken the liberty of dedicating it to that most energetic and painstaking Lepidopterist.

111. TAGIADES FLESUS.

Papilio flesus, Fabricius, Spec. Ins. ii. p. 135 (1781).

Leya stream, Deep Bay, June 4th, 1895.

112. EAGRIS JAMESONI.

Antigonus jamesoni, Sharpe, Ann. & Mag. Nat. Hist. ser. 6, vol. vi. p. 348 (1890).

Chuona River (Mwewe's town), Unyika, Sept. 14th; Lampi River, Lower Nyika, Oct. 21st, 1895.

113. ABANTIS (SAPÆA) TRIMENI.

Sapæa trimeni, Butler, P. Z. S. 1895, p. 264, pl. xv. fig. 5.

Loangwa River, Senga, Sept. 10th, 1895.

I wish I could agree with Dr. Holland in thinking this identical with Westwood's species; but, as the species most nearly allied to the latter and this (*A. paradisea*) invariably has the sides of the abdomen ochreous, and the number of segments said by Westwood to be luteous does not correspond with the number of segments which are white in *A. trimeni*, I consider that, until specimens of the latter are received from the same locality as that of Westwood's type, I still have the stronger case.

114. GORGYRA JOHNSTONI.

Aeromachus? johnstoni, Butler, P. Z. S. 1893, p. 673.

Gorgyra johnstoni, Holland, P. Z. S. 1896, p. 32, pl. ii. fig. 6.

♂, Deep Bay, Feb. 6th; ♂, ♀ taken *in coitu*, Feb. 15th, 1896.

♀. "Pale yellow ova" (*R. C.*).

The sexes are absolutely alike.

115. OXYPALPUS RUSO.

Pamphila ruso, Mabille, C.R. Soc. Ent. Belg. vol. xxv. p. clxxxiii (1891).

Oxypalpus ruso, Butler, P. Z. S. 1893, p. 669; Holland, l. c. 1896, p. 39, pl. iii. fig. 13.

Mtambwi Hill, Feb. 20th; Kondowi, 4000 feet alt., Nyika, Feb. 21st; Kasungu Mountain, 7425 feet alt., Nyika, March 4th, 1896.

This pretty species varies a good deal on both surfaces; the black longitudinal streak on the primaries above is frequently divided longitudinally by an ochreous median vein, and transversely by an orange-ochreous bar just before the end of the cell; the ochreous longitudinal stripe of the secondaries is sometimes expanded so as to leave only a narrow black costal border; on the under surface there is occasionally a subapical decreasing series of five cream-coloured spots divided only by the nervures (which are dull orange), and the secondaries are cream-coloured, with orange-tawny veins and internal streak: intergrades between the extremes occur.

116. *CYCLOPIDES PEREXCELLENS*. (Plate XLII. fig. 2.)

Cyclopides perexcellens, Butler, Ann. & Mag. Nat. Hist. ser. 6, vol. xviii. p. 161 (1896).

Kasungu Mountain, 7425 feet alt., Nyika, March 2nd and 5th, 1896.

117. *CYCLOPIDES QUADRISIGNATUS*.

Cyclopides quadrisignatus, Butler, P. Z. S. 1893, p. 670, pl. lx. fig. 9.

Kasungu Mountain, 6200 feet alt., March 1st; 7425 feet, March 2nd, 3rd, and 6th, Nyika.

Every fresh collection brings additional evidence of the variability of this species. The example obtained on March 6th has the two obliquely-placed orange spots just beyond the middle of the primaries unusually large and confluent, two small costal spots being only separated from them by the subcostal nervure. At first sight this variety might be taken for a modification of *C. midas*, but it is not only too dark, both in ground-colour and spots, but the inner of the two costal spots (which doubtless represents the basal orange dash in *C. midas*) is much too far from the base to be characteristic of that species, whilst the absence of the spot in the discoidal cell of the secondaries is characteristic of *C. quadrisignatus*.

118. *CYCLOPIDES MIDAS*.

Cyclopides midas, Butler, P. Z. S. 1893, p. 671; 1895, p. 265, pl. xv. fig. 6.

Chuona River (Mwewe's), Unyika, August 26th, 1895.

The damaged aberrant examples recorded under this species in my paper on Mr. Scott Elliot's collection prove to be extreme forms of the preceding species: I had thought it impossible that *C. quadrisignatus* could vary so much. *C. midas* is tolerably constant.

119. *GEGENES LETTERSTEDTI*.

Hesperia letterstedti, Wallengren, Kongl. Svensk. Vetensk.-Akad. Handl. 1857, Lep. Rhop. Caffr. p. 49.

Kasungu Mountain, 7425 feet alt., Nyika, March 4th, 1896.

The only objection which I can see to *G. obumbrata* (= *hottentota*) being a form of the above species, is the presence of a well-defined brand on the primaries of the male: no trace of this brand is visible on any of our examples of either the yellowish or the smoky-brown variety of *G. letterstedti*.

120. ANDRONYMUS PHILANDER.

Pamphila philander, Hopffer, Monatsber. Akad. Wiss. Berl. 1855, p. 643; Peters' Reise nach Mossamb., Zool. v. p. 416, pl. xxvii. figs. 1. 2 (1862).

♀ ♀, Mtambwi Hill, W. of Lake Nyasa, Feb. 22nd, 1896.

"Large dark yellow ova" (*R. C.*).

I am very glad that Dr. Holland has made this the type of a new genus; it was quite out of place in *Acleros*.

HETEROCERA.

121. CEPHONODES HYLAS.

Sphinx hylas, Linnæus, Mantissa, i. p. 539 (1771).

♂ ♀, Deep Bay, Feb. 16th and March 10th, 1896.

"Frequents the beds of *Azineas* in the fort, but is not plentiful" (*R. C.*).

The female contained "bright emerald-green ova."

122. MACROGLOSSA TROCHILOIDES.

Macroglossa trochiloides, Butler, P. Z. S. 1875, p. 5.

Kasungu Mountain, 7425 feet alt., Nyika, March 4th, 1896.

A beautiful and perfectly typical example of this race.

123. BASIOTHEA IDRICUS.

Sphinx idricus, Drury, Ill. Nat. Hist. iii. pl. 2. fig. 2 (1773).

♀, Deep Bay, Feb. 18th, 1896.

"Day-flyer: emerald-green ova" (*R. C.*).

The most perfect specimen that I have seen of this tiny green-winged Hawk-moth.

124. CILÆROCAMPA ESON, VAR. GRACILIS.

Cherocampa gracilis, Butler, P. Z. S. 1875, p. 8, pl. ii. fig. 2.

♀, Deep Bay, Feb. 22nd, 1896.

"Light sea-green ova" (*R. C.*).

Chiefly differs from the Southern form (typical *C. eson*) in its narrower wings, with more oblique outer margin.

125. XANTHOSEILOPTERYX PERDIX.

Eusemia perdix, Druce, P. Z. S. 1887, p. 668.

Eusemia eoa, Mabille, Bull. Soc. Ent. France, 1890, p. 123; Novit. Lepid. pl. xi. fig. 1 (1892).

♀, Deep Bay, Feb. 11th, 1896.

"About as common, perhaps, as the 'Cream-spot tiger' in Great Britain. Emerald-green ova" (*R. C.*).

The first example that I have seen of this pretty species.

126. *ÆGOCERA INCLUSA*.

♀. *Pristocera*? *inclusa*, Karsch, Ent. Nachr. 1895, p. 357, Taf. ii. fig. 5.

♂, Virauli Mountain, Nyasa to Tanganyika plateau, Dec. 14th, 1895.

"Fairly plentiful" (*R. C.*).

Quite new to the Museum series: Mr. Kirby is of opinion that it is the same as *Metagarista rindalli*, Rothsch., and it is quite possible that he may be correct.

127. *ÆGOCERA MENETA*.

Noctua meneta, Cramer, Pap. Exot. i. pl. lxx. D (1775).

Kondowi, 4000 feet alt., Nyika, Feb. 21st, 1896.

128. *CHARILINA AMABILIS*.

Noctua amabilis, Drury, Ill. Exot. Ent. ii. pl. 13. fig. 3 (1773).

Deep Bay, Feb. 10th and 13th, 1896.

129. *ZANA SPURCATA*.

Anthea spurcata, Walker, Cat. Lep. Het. xxxi. p. 298 (1864).

♀, Mweniwanda's, Nyasa to Tanganyika plateau, Dec. 15th, 1895.

130. *PHALERA LATIPENNIS*, sp. n. (Plate XLII. fig. 3.)

♂. Broader in the wings than any other species of the genus; the antennæ broadly pectinated as in *P. argentifera*; the upper radial of the primaries springing from the anterior angle of the cell, instead of from the subcostal; general scheme of colouring recalling *P. flavescens*. Primaries above creamy white; base of costa sprinkled with black and brick-red scales; a band of red scales crossing the wing at about basal third and followed immediately by a band of black scales, both divided by the pale nervures; two or three ill-defined greyish and testaceous stripes across the middle of the wing; at external two-sevenths is a broad belt almost parallel to outer margin, consisting first of a subangulated oblique series of black lunules, immediately followed by a more or less lunulate brick-red stripe, somewhat blackish in the centre, and lastly by a grey band irrorated with black and separating into vague lunules towards apex; a few ill-defined submarginal spots of black scales: secondaries sericeous ochreous, veins dusty, becoming black at apex and on outer margin: head, collar, and centre of thorax brownish ochreous; antennæ black; pterygodes and metathorax white, somewhat ochreous at the sides; an oblique black bar on the front of the pterygodes; abdomen reddish ochreous, with grey dorsal patches on each segment. Wings below ochreous, the veins chiefly black beyond the middle; the primaries from beyond the

cell dusted with grey; a submarginal series of ochreous lunules; a partly zigzag dusky marginal border, interrupted on the fringe by ochreous spots: secondaries with a slender black marginal line: body below deep ochreous; tibiae, tarsi, and venter more or less blackish. Expanse of wings 55 millim.

Luvira River, Nyasa to Tanganyika plateau, Dec. 14th, 1895.

It is possible that this species may eventually be separated from *Phalera* as the type of a new genus, but at present there does not seem sufficient evidence of the importance of the characters which differentiate it to warrant its being thus distinguished; the width of the wings and the antennal characters are not uniform in the genus, whilst the position of the upper radial is the same as in *P. signata*.

131. PANTOCTENIA GEMMANS.

Pantoctenia gemmans, Felder, Reise der Nov., Lep. iv. pl. lxxxii. fig. 16 (1874).

Kasungu Mountain, 7425 feet alt., Nyika, March 2nd, 1896.

132. TÆDA PRASINA. (Plate XLII. fig. 4.)

Tæda prasina, Butler, Ann. & Mag. Nat. Hist. ser. 6, vol. xviii. p. 161 (1896).

Luvira River, Nyasa to Tanganyika plateau, Dec. 14th, 1895.

SCOTINOCHROA, gen. nov.

Allied to *Cosuma*, neuration the same; antennæ longer and more uniformly pectinated; palpi totally dissimilar—much longer, forciform, the second joint long, subcylindrical, somewhat flattened internally, directed obliquely upwards, third joint half the length of the second, somewhat acuminate; tarsi of front pair of legs not fringed as in *Cosuma*, and those of the second and third pairs rather penicillated than fringed, each joint having a fairly well-defined separate flattened tuft at the back.

133. SCOTINOCHROA INCONSEQUENS, sp. n.

Primaries above vinaceous chocolate-brown, sprinkled with shining, mostly leaden-grey scales; a D-shaped spot at the end of the cell, connate with an oblique irregular band from costa near apex to inner margin, this band is narrowest and inarched at its upper extremity, widest towards the inner margin; both spot and band are mostly whitely brown externally and shining leaden grey in the middle, and are bounded internally by irregular black dashes and externally by a black line; from the cell downwards the inner margin of the band is zigzag and the outer margin undulated, and followed by an abbreviated similar band, which, however, has no leaden central scales (and therefore stands out as a pale patch with undulated outer margin): secondaries pale sericeous vinaceous, showing slight greenish reflections in certain lights; the abdominal border and base of fringe sienna or golden brownish; centre of

fringe blackish, tips shining dark vinaceous: body deep chocolate-brown, sprinkled with shining leaden scales; the posterior edges of the collar and bases of the metathoracic and abdominal tufts somewhat ochreous; antennæ pale sericeous brown. Under surface of wings sericeous pale brown, darker towards costal area, somewhat vinaceous, fringes distinctly so; primaries blackish in the cell and with a glistening internal area: body below glossy vinaceous chocolate-brown, the extremities of leg-joints and the last joint of the palpi somewhat ochraceous. Expanse of wings 82 millim.

Deep Bay, Feb. 5th, 1896.

134. *THYRETES PHASMA*, sp. n.

♀. Very close to *T. caffra*, but easily distinguished from the fact that the hyaline triangular spot in the cell of primaries fills the upper instead of the lower angle; also the inner edge of the hyaline belt from median vein to apex is not irregular but forms a direct oblique line, the second division from the apex being much elongated backwards; the brown border of the secondaries is also narrower. Expanse of wings 37 millim.

Deep Bay, Feb. 18th, 1896.

"Pale green ova" (*R. C.*).

135. *ARGINA OCELLINA*.

Deiopeia ocellina, Walker, Cat. Lep. Hct. ii. p. 571 (1854).

♂ ♀, Deep Bay, Feb. 27th, 1896.

"Fairly common, a day-flyer, sits on grass-stalks" (*R. C.*).

DICTENUS, gen. nov.

Allied to *Setinochroa*, of exactly the same form; but differing utterly in the character of the antennæ, which are solidly bipectinated, the pectinations widely separated and emitting short bristles: the primaries with only four branches to the subcostal vein, the fork of the united third and fourth branches being longer than in *Setinochroa* and more divergent; secondaries with the subcostal furca considerably shorter and the footstalk consequently very much longer than in that genus.

136. *DICTENUS INCONSTANS*, sp. n. (Plate XLII. fig. 5.)

Wings bright ochreous, the primaries with a conspicuous black spot at the end of the cell; basal half of costal border black; the remaining half sometimes black, as well as a broader outer border and narrow internal border: body black, collar, pterygodes, and metathorax clothed with ochreous hair; anal tuft ochreous: wings below nearly as above, but the secondaries with a small blackish spot at the end of the cell: body below black; tibiæ and tarsi of middle and hind legs ochreous tipped with black. Expanse of wings 20 millim.

Kasungu Mountain, 7425 feet alt., Nyika, March 2nd and 5th, 1896.

137. *LEPTOSOMA APICALE*.

Nyctemera apicalis, Walker, Cat. Lep. Het. ii. p. 395 (1854).

♀ ♀, Deep Bay, May 16th, 1895.

"Light yellow ova" (*R. C.*).

138. *SPILOSOMA AURICINCTUM*, sp. n. (Plate XLII. fig. 6.)

Nearest to *S. purum* (*Alpenus purus*), but easily distinguishable from the fact that the head and the collar are bordered at the back with bright ochreous; the primaries are more produced, the costal margin being longer and the black dots are few, small, and confined to the base and costal area; the secondaries only show three conspicuous black spots in the form of a triangle, the apex of which is represented by a spot at the end of the cell and the base by two submarginal spots; primaries below immaculate, but secondaries as above. Expanse of wings 44 millim.

♀, Fuleriva hills, 2000 feet alt., Deep Bay, March 5th, 1896.

This species and *S. purum* are strikingly unlike the other Ermine Moths from the fact that both extremities of the bright golden-ochreous black-dotted abdomen are snow-white. Our examples of *S. purum* from British East Africa show no trace of the dorsal black dots, but otherwise are typical.

139. *AROA TERMINALIS*.

Aroa terminalis, Walker, Cat. Lep. Het. iv. p. 794 (1854).

♂, Kondowi, 4000 feet alt., Nyika, Feb. 21st, 1896.

Walker's description, having been based upon a badly rubbed and barely recognizable specimen, is utterly useless for the identification of the species; I therefore redescribe the insect from Mr. Crawshay's beautiful male example:—Primaries above deep yellowish testaceous or bright mustard-yellow; a paler central band with widely bisinuated outer edge, expanding within the cell to enclose a conspicuous rounded blood-red spot; a pale band crossing the disc near the outer margin, its inner edge bisinuated, its outer edge correspondingly biundulated; fringe very slightly paler than the ground-colour; secondaries deep orange-ochreous with bright golden-yellow fringe; antennæ yellow, with vinaceous brown pectinations; body ochreous, deepest on the abdomen: under surface bright saffron-yellow, the primaries irrorated with smoky brown scales towards apex forming two short divergent streaks; legs hairy, lemon-yellow. Expanse of wings 33 millim.

Kondowi, 4000 feet alt., Nyika, Feb. 21st, 1896.

I believe the specimen noted (*P. Z. S.* 1896, p. 135) as *Lopera crocata* var. ? is probably a very badly discoloured and faded example of this species.

140. *AROA BISTIGMIGERA*, sp. n. (Plate XLII. fig. 7.)

♂. Nearest to *A. clara*: upper surface dead golden, or dull ochraceous, suffused with vinaceous greyish; fringe deep grey;

primaries with two conspicuous black spots at the end of the cell; secondaries with a fairly broad smoky black border; body smoky black; shaft of antennæ, head, collar, shoulders, and anal tuft ochreous: wings below paler than above, primaries with a large almost semicircular subapical blackish patch from end of cell; body below ochreous, blackish at the sides. Expanse of wings 27 millim.

♂♂, Kondowi, 4000 feet alt., Nyika, Feb. 21st, 1896.

"Day flier" (*R. C.*).

The sexes in this genus differ so much that it would not greatly surprise me to discover that the following form was the female of *A. bistigmigera*: at the same time, as Sir George Hampson points out, the pattern is so dissimilar that it would be absurd to put the two together without trustworthy proof of their identity: then again it is just as likely that *A. ochraceata* (which we have received from Zomba) may be the female of this species, inasmuch as it often has two spots at the end of the cell of primaries, though in other respects it is utterly dissimilar.

141. *AROA CHARAX*, Drnce. (Plate XLII. fig. 8.)

♀. Upper surface tawny orange with broad smoky brown outer borders, that of the primaries occupying the apical third of the wing and crossed by blackish veins (which colouring commences on the orange area); border of secondaries abruptly narrowed towards anal angle; fringes scriceous, dark grey; a conspicuous black spot at the end of each discoidal cell; primaries with narrow dusky costal margin, three small black spots across the base; antennæ and third joint of palpi black; abdomen paler than thorax, golden ochreous with a dorsal series of black spots: wings below nearly as above, no subbasal spots on the primaries; body below bright ochreous; tarsi of all the legs and tibiæ of front and middle pairs black. Expanse of wings 43 millim.

Deep Bay, April 30th, 1895.

142. *LYMANTRIA BANANÆ*, sp. n. (Plate XLII. fig. 9.)

♂. Primaries semitransparent cream-coloured, the basal third smoky brown, bisinuated in front; costa to end of cell the same colour confluent with a constricted Y-shaped bar which crosses the end of the cell; an oblique zigzag smoky-brown line, incurved towards costa, across the disc; a marginal irregular patch of the same colour near apex, and a second at external angle, also an intermediate small triangular intermediate spot; veins, excepting from the end of the cell to the apex, partly brown and partly blackish; and all the veins as they cross the zigzag line blackish: secondaries semitransparent pale golden ochreous, more opaque and more distinctly ochreous on abdominal two-fifths: body above tawny ochraceous, palest at the extremities, somewhat vinaceous on the thorax; antennæ and tips of palpal joints black: under surface of wings immaculate; body cream-coloured, a few orange hairs on

front of pectus; sides of venter ochreous. Expanse of wings 50 millim.

Mpata, W. coast of Lake Nyasa, August 21st, 1895.

"Taken in a banana plantation" (*R. C.*).

We have a nearly allied species in the Museum collection from Old Calabar.

143. *MARDARA CURVIVIRGATA.*

Laelia curvivirgata, Karsch, Ent. Nachr. 1895, p. 373, Taf. iv. fig. 3.

♂, Lower Nyika, 4200 feet alt., June 30th, 1895.

This species is closely related to my *M. peculiaris* from Madagascar, but differs in the fact that the golden-brown band across the primaries runs to the apex instead of to the costal margin.

144. *HIBRILDES NORAX.*

Hibrildes norax, Druce, P. Z. S. 1887, p. 675.

Aengya spiritalis, Karsch, Ent. Nachr. 1895, p. 374, pl. iv. fig. 7.

♂, Mweniwanda's, Nyasa to Tanganyika Road, Dec. 22nd, 1895.

145. *HIBRILDES CRAWSHAYI.*

Hibrildes crawshayi, Butler, Ann. & Mag. Nat. Hist. ser. 6, vol. xviii. p. 162 (1896).

♀, Mwini-uruma's town, Nyasa to Tanganyika plateau, Dec. 17th, 1895.

It is of course possible that the sexes of *H. norax* may be utterly dissimilar in colour and pattern, and that this may prove to be its female: if so, Mr. Kirby's two new species will also be sexes.

146. *PSEUDAPHELIA APOLLINARIS.*

Saturnia apollinaris, Boisduval, Voy. de Deleg. ii. p. 601 (1847).

Namitembo, Zomba Mountains, March 25th, 1896.

"Huge quantity of pale yellow ova" (*R. C.*).

147. *ANTHERÆA DOLABELLA.*

Antheræa dolabella, Druce, P. Z. S. 1886, p. 409, pl. xxxviii. fig. 2.

♀, Kasungu Mountain, 7020 feet alt., Nyika, March 1st, 1896.

"Large spherical whitish-yellow ova" (*R. C.*).

It is unfortunate that the single example of this rare species obtained by Mr. Crawshay was a good deal worn.

148. *TRIGONODES HYPASIA.*

Phalœna-Noctua hypasia, Cramer, Pap. Exot. iii. p. 99, pl. ecl. fig. E (1782).

♀, Deep Bay, March, and Oct. 18th, 1896.

"Bright green ova" (*R. C.*).

149. *PATULA WALKERI*.

Patula walkeri, Butler, Ann. & Mag. Nat. Hist. ser. 4, vol. xvi. p. 406.

Zambezi River, East Africa, April 16th, 1896.

Perhaps this ought to be included in the present paper, but it was not sent with the Nyasa collection.

150. *ARGADESA MATERNA*.

Phalena-Noctua materna, Linnæus, Syst. Nat. ii. p. 840.

Deep Bay, Oct. 9th, 1895.

151. *HÆMATORITHRA RUBRIFASCIATA*.

Hematorithra rubrifasciata, Butler, Ann. & Mag. Nat. Hist. ser. 6, vol. xviii. p. 162 (1896).

Deep Bay, Feb. 26th, 1896¹.

152. *HYRIA ANGUSTA*, sp. n.

Primaries above dull vinaceous purple; a broad oblique central golden ochreous band from inner margin to above the median vein, impinged upon at its anterior extremity by a blackish spot at the end of the cell; fringe golden ochraceous, somewhat stained with dull purplish at the base; secondaries bright golden ochreous, with a black dot at the end of the cell; outer border and basal half of fringe dull vinaceous purple; body sericeous dark vinaceous greyish; shaft of antennæ silvery, slightly buffish at base; under surface of wings nearly as above, but the basi-internal area of primaries sericeous and somewhat silvery; legs and centre of venter pale buff. Expanse of wings 14 millim.

Kasungu Mountain, 7200 feet alt., Nyika, March 5th, 1896.

"Day flier" (*R. C.*).

EXPLANATION OF THE PLATES.

PLATE XLI.

- Fig. 1. *Anauris crawshayi*, p. 821.
2. *Panopea heliogenes*, p. 823.
3. *Platema scabivittata*, p. 826.
4. *Alena reticulata*, ♂, p. 827.
5. *Cyclyrus juno*, p. 830.
6. *Copys connexiva*, ♂, p. 831.
7. *Iolus auricostalis*, ♀, p. 832.

PLATE XLII.

- Fig. 1. *Sarangesa hollandii*, p. 840.
2. *Cyclopides perexedens*, p. 842.
3. *Phalera latipeinis*, p. 844.
4. *Tæda prasina*, p. 845.
5. *Dicænis inconstans*, p. 846.
6. *Spilosoma auricinctum*, p. 847.
7. *Ara bistignigera*, p. 847.
8. " *charax*, p. 848.
9. *Lymantria bananae*, p. 848.

¹ Caught by Mr. G. A. Taylor.